

## REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections contained in the Office Action of April 15, 2008 is respectfully requested.

By this Amendment, claims 22-31 have been added. Thus, claims 1, 5, 6, 8-10, 14, 15, 18 and 21-31 are currently pending in the application. No new matter has been added by these amendments.

On pages 2-4 of the Office Action, the Examiner rejected claims 1, 5, 6, 8 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Takizawa (US 6,504,254) in view of Miyako (US 6,486,565). In addition, on pages 5-7 of the Office Action, the Examiner rejected claims 9, 10, 14, 15 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Takizawa. For the reasons discussed below, it is respectfully submitted that the present claims, including independent claims 1, 9 and 14, are clearly patentable over the prior art of record.

### Independent Claim 1

Independent claim 1 recites a semiconductor device which includes a semiconductor substrate having a pattern forming region and a pattern non-forming region, a wiring pattern formed on the pattern forming region, and a plurality of dummy patterns formed on the pattern non-forming region, with the plurality of dummy patterns being formed within a plurality of dummy areas, and with each of the plurality of dummy areas having a same shape. Claim 1 also recites that *each of the dummy patterns has a plurality of parallel line patterns, each of the line patterns of the plurality of line patterns being spaced apart from each other* by an area filled by the deposition of said insulating film. Claim 1 also recites that a distance between each of the line patterns of the plurality of line patterns is less than 72  $\mu\text{m}$ .

Takizawa discloses hexagonal-shaped dummy wiring sections 30 having an opening 32 (Fig. 2) or a plurality of openings 32 (Fig. 4). However, as acknowledged by the Examiner on page 3 of the Office Action, Takizawa does not disclose that *each of the dummy patterns has a plurality of parallel line patterns, with each of the line patterns of the plurality of line patterns being spaced apart from each other*, as required by independent claim 1.

Miyako discloses a semiconductor device which, as shown in Fig. 1, includes a plurality of dummy patterns 12. In addition, Fig. 2 of Miyako discloses a dummy pattern formed of a

plurality of columns. Thus, the Examiner concludes that it would have been obvious to one of ordinary skill in the art to modify the dummy pattern of Takizawa with a dummy pattern formed of a plurality of columns as taught by Miyako.

In support of this conclusion, on page 3 of the Office Action, the Examiner asserts that “Takizawa discloses that the shape of the pattern can be of any configuration (col. 5, lines 48-51) or that the periphery of the patterns may be discontinuous (col. 6, lines 6-10).” In this regard, it is noted that Takizawa does not disclose that the shape of the pattern can be of any configuration, as suggested by the Examiner. Rather, column 5, lines 48-51 of Takizawa states that the configuration of the through hole may be any one of various configurations. Therefore, Takizawa only discloses that the configuration of the through hole may be any one of various configurations, and that the periphery of the patterns may be discontinuous. Thus, Takizawa does not disclose or suggest that the shape of the dummy wiring pattern can be of any configuration, as asserted by the Examiner.

Further, it is noted that Takizawa discloses that each dummy wiring section 30 includes at least one through-hole 32 surrounded by a peripheral portion of the wiring section 30. It is also noted that a proposed modification to a prior art reference would not have been obvious to one of ordinary skill in the art if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, as stated in MPEP § 2143.01.

In this regard, it is noted that Takizawa discloses that the through-holes reduce the plan area of the dummy wiring sections that overlap device elements formed on a level below the dummy wiring sections compared to dummy wiring sections which do not have through-holes, and that the through-holes facilitate observation of the devices below the dummy wiring sections by an optical microscope (column 1, lines 48-55). It is also noted that the dummy pattern 12 of Miyako is a plurality of parallel columns which does not include at least one through-hole. Therefore, the addition of the dummy pattern of Miyako to the semiconductor of Takizawa would render the invention of Takizawa unsatisfactory for its intended purpose, because the parallel columns of Miyako do not include a through-hole, and would therefore increase the area of the dummy wiring section 30 which overlaps the first wiring layer 14 of Takizawa, and would hinder the ability to observe the devices with an optical microscope.

In this regard, on pages 7-8 of the Office Action, the Examiner states that “since Takizawa teaches (col. 5, lines 48-51 or col. 6, lines 6-10) that the patterns can have any configuration[,]. . . it makes it possible for the teachings of Miyako to be combined with Takizawa or for the patterns to be modified into any shape.” However, as indicated above, it is noted that Takizawa only discloses that the configuration of the opening can be any configuration, and does not disclose that the overall pattern can be any configuration. Accordingly, it is respectfully submitted that it would not have been obvious to one of ordinary skill in the art to combine the Takizawa and Miyako references so as to result in the invention of independent claim 1.\

### **Independent Claim 9**

Independent claim 9 recites a semiconductor device which includes a semiconductor substrate having a pattern area and a non-pattern area, a conductive pattern formed on the pattern area of the semiconductor substrate, and a plurality of dummy patterns formed on the non-pattern area of the semiconductor substrate, with each of the plurality of dummy patterns having a same continuous rectangular outline shape as each other and being arranged in a matrix with predetermined spacing. Claim 9 also recites that *each of the dummy patterns has only one square-shaped opening* so that a pattern ratio of the semiconductor device is reduced. Claim 9 also recites that a width of the opening of each of the dummy patterns is less than 72  $\mu\text{m}$ .

As discussed above, Takizawa discloses hexagonal-shaped dummy wiring sections 30 having an opening 32 (Fig. 2) or a plurality of openings 32 (Fig. 4). However, Takizawa does not disclose that each of the dummy patterns has only one square-shaped opening, as required by amended independent claim 9. On page 5 of the Office Action, the Examiner asserts that Takizawa discloses that “each of said plurality of dummy patterns has a single square-shaped opening (32) (the pattern actually has 4 single openings).” However, it is noted that independent claim 9 does not recite “a single square-shaped opening.” Rather, independent claim 9 recites that each dummy pattern has only one square-shaped opening. As acknowledged by the Examiner, Fig. 4(c) of Takizawa discloses a dummy wiring section which includes four square-shaped openings. Thus, Takizawa does not disclose dummy patterns which each have only one square-shaped opening, as required by independent claim 9.

#### **Independent claim 14**

Independent claim 14 recites a semiconductor device which includes a semiconductor substrate having a pattern area and a non-pattern area, a conductor pattern formed on the pattern area of the semiconductor substrate, and a plurality of dummy patterns formed on the non-pattern area of the semiconductor substrate. Claim 14 also recites that each of the dummy patterns has a space portion within each of the dummy areas so that a pattern ratio of the semiconductor device is reduced. Further, claim 14 recites that each of the dummy patterns includes an opening at the space portion, with the opening *having a shape of a letter or a number*, with each opening of the dummy patterns having a width less than 72  $\mu\text{m}$ .

As acknowledged by the Examiner on page 6 of the Office Action, Takizawa does not disclose that *each of the dummy patterns includes an opening at the space portion, with the opening having a shape of a letter or a number*, as required by independent claim 14.

Nonetheless, the Examiner asserts that it would have been obvious to one of ordinary skill in the art to modify the dummy pattern of Takizawa to have an opening having a shape of a letter or a number. In this regard, it is noted that “rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). See also *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, \_\_\_, 82 USPQ2d 1385, 1396 (2007).

In this regard, it is noted that on pages 7 and 8 of the Office Action, the Examiner indicates that Takizawa discloses that the hole of the dummy pattern may have any configuration, and also asserts that a change in the shape of a component is generally regarded as being within the level of ordinary skill in the art. Therefore, the Examiner appears to take the position that any change in shape in the opening of the dummy pattern would necessarily be obvious in view of Takizawa.

However, it is respectfully submitted that this assertion is merely conclusory and does not include the required articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. In particular, it is noted that while Takizawa discloses that the configuration of the through hole may be “any one of various configurations,” Takizawa only

provides examples of such “various configurations” as being hexagonal, square, and triangular shapes (*i.e.*, basic geometric shapes). Takizawa does not disclose or even remotely suggest that the shape of the opening can be in the shape of a letter or a number. Thus, the conclusion an opening having a shape of a letter or number would have been obvious appears to rely solely on the boilerplate statement of Takizawa that the hole of the dummy pattern may have “any configuration” and the general recognition of changes in shape being within the level of ordinary skill in the art.

Accordingly, it is respectfully submitted that the features of independent claim 14 as identified above are not disclosed by the Takizawa reference, and would not have been obvious to one of ordinary skill in the art. Further, it is noted that the Miyako reference does not cure the defects of the Takizawa reference as described above.

Therefore, it is respectfully submitted that amended independent claims 1, 9 and 14, as well as claims 5, 6, 8, 10, 15, 17, 18 and 21-31 which depend therefrom, are clearly allowable over the prior art of record.

#### **Dependent claim 22**

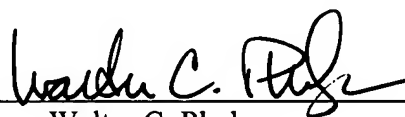
In addition, the Examiner’s attention is directed to the dependent claims which further define the present invention over the prior art. In particular, dependent claim 22 depends from independent claim 14, and recites that *the openings of the dummy patterns each have a shape different from one another*. As indicated above, the applied prior art does not disclose openings which have the shape of a letter or a number, as required by claim 14. Further, the applied prior art does not disclose dummy patterns having openings in the shape of a letter or a number, and that *the openings of the dummy patterns each have a shape different from one another*, as required by claim 22. In this regard, it is noted that page 13 of the original specification discloses that dummy patterns which have openings shaped differently from one another can be used as addresses within the semiconductor device. Accordingly, it is respectfully submitted that the features of dependent claim 22 are not disclosed by the applied prior art

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice to that effect is respectfully solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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